
TDL Guide 2010-2011

Essential information for
members



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Introduction

About the Texas Digital Library

The Texas Digital Library (TDL) is a consortium of higher education institutions in Texas that provides shared services in support of research and teaching.

The TDL began in 2005 as a partnership between four of the state's largest Association of Research Libraries (ARL) universities: Texas A&M University, Texas Tech University, the University of Houston, and the University of Texas at Austin. As of September 2010, the consortium has 15 members, representing large and small institutions from every region of the state.

Collectively, these institutions represent more than 20,000 faculty members and 250,000 students, including some 50,000 graduate and professional students.

The mission of the TDL is to draw from the combined resources of its members to provide cost-effective, collaborative solutions to the challenges of digital storage, publication, and preservation of research, scholarship, and teaching materials.

Goals of the Texas Digital Library

- Encourage open access to the scholarly assets of member institutions.
- Enable the long-term preservation of digital collections.
- Help to shape the evolution of scholarly communication in the 21st century.
- Reduce cost burdens through the sharing of resources across multiple institutions.
- Encourage collaboration among Texas institutions and scholars.
- Create a competitive advantage for seeking grants by serving as a testbed for research.
- Raise the profile of research and teaching conducted by Texas universities.

Services

Institutional Repositories

The Texas Digital Library (TDL) provides DSpace digital repositories for its members, allowing

them to collect, preserve, and distribute the scholarly output of their institutions.

Electronic Thesis and Dissertation Submission and Management

With Vireo, the TDL's electronic thesis and dissertation (ETD) submission and management system, students at member institutions can submit digital theses and dissertations via a simple online interface, while graduate offices can manage the ETD submission and approval process behind the scenes and publish the ETDs in an institutional repository.

Digital Preservation

Digital assets hosted by TDL are preserved in the TDL Preservation Network (PresNet). Through a partnership with the Texas Advanced Computing Center, the TDL packages and archives materials at TACC, which in turn replicates the data at its partner organizations at geographically dispersed locations.

Electronic Journals

The Texas Digital Library offers support for publishing online, peer-reviewed journals through the Open Journal Systems open-source platform.

Other Scholarly Communication Services

- Scholarly blogs
- Sites
- Research wikis
- Faculty homepages
- Online conference management software

User Support

- Helpdesk support
- TDL Wiki (user documentation)
- Training courses
- Users Groups

Current Projects

TDL Projects

Texas ETD Repository

The TDL has developed software and the necessary technical infrastructure for managing and storing electronic theses and dissertations (ETDs), as well as for making them widely accessible online via a federated statewide repository. The repository harvests ETD records from member repositories using the Open Archives Initiative protocol for Object Reuse and Exchange (OAI-ORE). The statewide ETD collection is available at <http://repositories.tdl.org/tdl>.

Texas Learning Object Repository

With funding from the Texas Higher Education Coordinating Board, the TDL has partnered with the University of Texas System to develop a statewide repository for storing and disseminating objects used in teaching and learning.

Preservation Network

In order to preserve digital assets for future generations, the TDL is developing a robust infrastructure for preserving multiple copies of digital collections at distributed geographic nodes. The TDL Preservation Network has the capability to package and preserve in a dark archive all data deposited in TDL-hosted applications.

Vireo Open Source Release

In keeping with the requirements of its IMLS grant, the TDL released its Vireo software for managing electronic thesis and dissertation submission and publication as open-source software in September 2010.

Member Projects

Texas Water Digital Library

Working with water researchers across the state, the TDL is creating a federated collection of research that promotes effective management of this essential resource. By bringing dispersed collections together via OAI-ORE harvesting technology, the TWDL will provide access to a comprehensive collection of water-related information.

Border Studies Resource Center

With funding from IMLS, member school UT Brownsville/Texas Southmost College has undertaken a project to develop a federated DSpace repository (hosted by TDL) for collecting dispersed materials related to the Texas/Mexico border region. The infrastructure support of the TDL strengthened the UTB/TSC grant proposal by establishing the feasibility of the project and providing an innovative platform for disseminating content.

Los Primeros Libros

TDL member institutions Texas A&M University and the University of Texas at Austin, in collaboration with several universities in Mexico, are creating a rich digital collection of the *primeros libros* or “first books” printed in Mexico before 1601.

Dallas Medical History, 1890-1975

With grant funding from the National Network of Libraries of Medicine, TDL member institution UT Southwestern Medical Center is digitizing a collection of photos that chronicle the history of medicine in the Dallas area. UT Southwestern is using its TDL DSpace repository as a preservation tool for the project, in order to store the uncompressed master images for the project.

Organizational Structure

Staff

The Texas Digital Library is led by John Leggett, Associate Dean for Digital Initiatives at Texas A&M University Libraries, and Mark McFarland, Associate Director for Digital Initiatives at the University of Texas. The TDL Co-directors are responsible for the organization’s vision, direction, and day-to-day operations.

Additionally, the TDL employs full-time staff members, including TDL-funded positions and full-time and part-time staff contributions from member institutions. This core staff focuses on the development and maintenance of software and hardware systems, user support activities, and communications with TDL members and the public. (See Figure 1 below.)

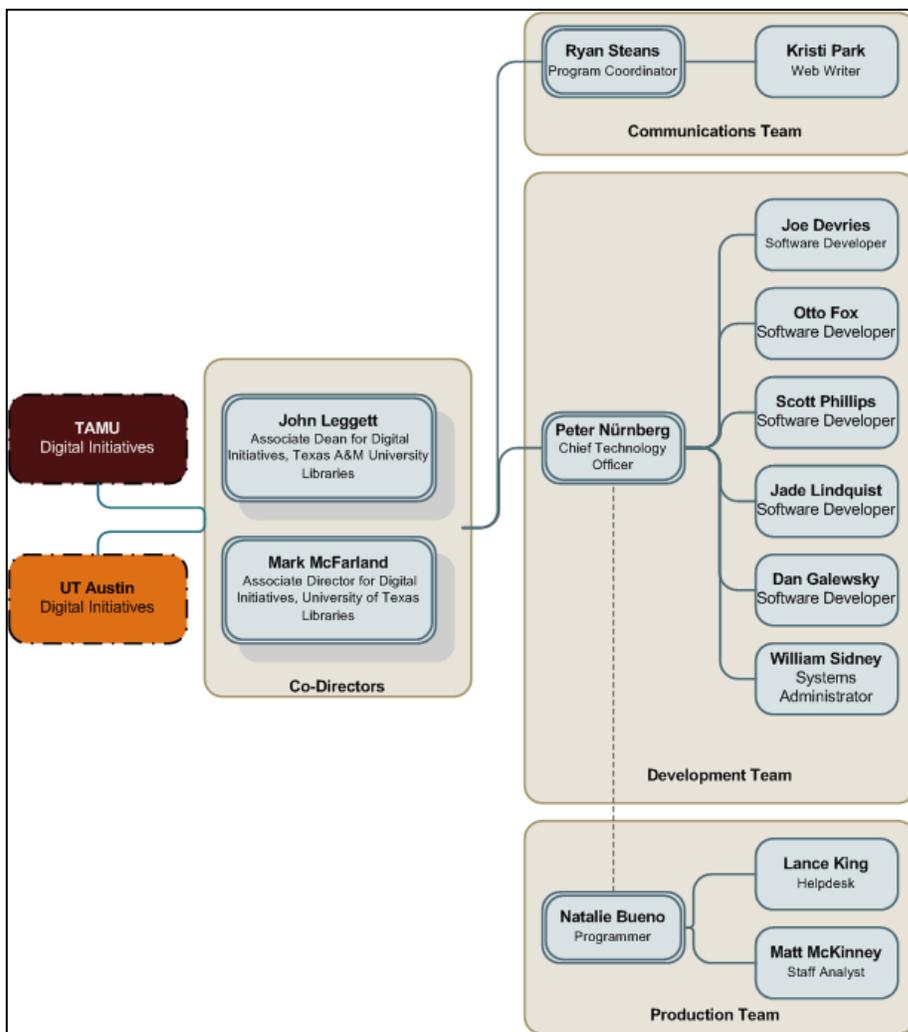


Figure 1: TDL Organizational Chart

Governing Board

The TDL Governing Board provides advice, guidance, and long-term perspective on the services and administration of the TDL. The group is comprised of library deans and directors from six TDL institutions:

- Colleen Cook, Dean of University Libraries, Texas A&M University
- Don Dyal, Dean of Libraries, Texas Tech University
- Fred Heath, Vice Provost and Director of University of Texas Libraries
- Joan Heath, Assistant Vice President, University Library, Texas State University
- Pattie Orr, Vice President for Information Technology and Dean of University Libraries, Baylor University
- Dana Rooks, Dean of Libraries, University of Houston

Other Key Contributions

In addition to its paid full-time staff, the TDL relies heavily on the contributions of staff and faculty at member institutions who advocate for TDL services on their campuses, participate in Users Groups and Working Groups, and contribute in numerous other ways to the success of the consortium. Additionally, member institutions contribute to the consortium by providing space and technology in support of TDL operations.

These contributions include:

- Working Group and Users Group leaders and members
- Members who lead training sessions
- Scholarly Communications Managers at member institutions
- Repository Managers at member institutions
- Thesis Office directors at member institutions
- Developers and system administrators at member institutions
- Space for TDL staff at member institutions UT Austin, Texas A&M, and Texas Tech
- Space and registration software for training sessions at Baylor

Membership Information

As a consortium, the TDL benefits from and depends on the contributions of all its members – not just monetary contributions, but the contributions of expertise and time that librarians, thesis office personnel, CIOs, faculty, and numerous others provide.

Working together, the members of the Texas Digital Library support endeavors that no single institution could accomplish on its own.

Member Institutions

Angelo State University

Baylor University

Texas A&M University*

Texas A&M University-Corpus Christi

Texas A&M University-Kingsville

Texas A&M University at Galveston

Texas A&M University at Qatar

Texas State University

Texas Tech University *

University of Houston*

The University of Texas at Austin*

The University of Texas at

Brownsville/Texas Southmost College

The University of Texas Southwestern

Medical Center at Dallas

The University of Texas Medical Branch at

Galveston

The University of Texas M. D. Anderson

Cancer Center

**founding member*

Benefits of TDL Membership

- Access to TDL scholarly communication services that disseminate your institution's scholarship widely, giving research more impact and accessibility.
- Hosting and maintenance of services on TDL hardware.
- Expertise of dedicated TDL software development team and technical support services.
- Cost advantages of combining resources.
- Digital infrastructure in place provides advantages for grant-seeking.
- Preservation of assets in the TDL Preservation Network.
- Exchange of information through TDL Users Groups and Working Groups.
- Knowledge sharing with other libraries, grad schools, and institutions.

- Access to training and user support.
- Promotion of your digital library projects through TDL channels.
- Ability to participate in shaping the future of scholarly communication.

Membership Levels

Membership in the Texas Digital Library is open to any institution of higher learning in the state of Texas. All members receive access to the full suite of TDL scholarly communications services, including repositories, e-journal hosting and software, and Vireo, as well as basic preservation services and opportunities to participate in TDL training and support groups.

Affiliate Membership (small institutions)

Terms of Affiliate membership include the following:

- \$25,000 annual commitment
- 2 terabytes on TDL Preservation Network

Associate Membership (mid-sized institutions)

Terms of Associate-level membership include the following:

- \$50,000 annual commitment
- Funding for one full-time employee (or FTE equivalent)
- 4 terabytes on TDL Preservation Network

Founding Membership (large institutions)

The top membership level is open to large institutions, including the four founding members of the Texas Digital Library: Texas A&M, Texas Tech, the University of Houston, and UT Austin.

Terms of Founding membership include the following:

- \$100,000 annual commitment
- Funding for two full-time employees (or FTE equivalents)
- 8 terabytes on TDL Preservation Network

Member Participation

Local Support/Bridge Groups

The TDL provides the infrastructure support necessary to build and integrate the technology platforms for the services we provide, but the key to successful deployment and use of these services lies with our partner institutions. This requires that each member institution develop the local expertise to deploy and support services and commit to promoting and advocating TDL services to faculty and staff at their institution.

The TDL has outlined the organizational framework necessary to support TDL services in the document "Building the Local Support Structure for TDL Services" (Appendix B). This framework includes identifying staff who will fill certain necessary roles (such as repository manager) and creating a Bridge Group within the library to coordinate communication about the work of the TDL for the local institution.

TDL Users Groups and Working Groups

One important venue for member participation is in user groups and working groups that tackle issues of importance to the member community. Please visit www.tdl.org/groups for more information on TDL groups.

Vireo Users Group

The Vireo Users Group (VUG) gathers and prioritizes constituent needs to guide TDL on future development of the Vireo ETD submission and management software. It also provides avenues for the exchange of information about Vireo use and development.

The goals and major activities of the VUG include:

- Creating prioritized lists of user stories for the TDL development team.
- Voting annually on how product enhancements should be prioritized. (The Steering Committee selects the enhancements to be included in the vote.)
- Holding an annual user conference. These meetings give members a forum to express opinions and discuss issues, in person, with other members.

More information about the Vireo Working Group can be found at <http://blogs.tdl.org/vireo>.

PresNet Users Group

The PresNet Users Group helps to guide development of preservation policy and provides feedback to the TDL development team about member needs for preservation.

More information about the PresNet Users Group can be found in the TDL Wiki at https://wikis.tdl.org/tdl/Preservation_Network.

Metadata Working Group

The Metadata Working Group provides the TDL with general metadata expertise and addresses the following needs:

- Developing best practices for metadata, including ETD metadata.
- Educating stakeholders on all aspects of metadata.
- Providing guidance on current status and future trends in metadata development.

More information about the Metadata Working Group can be found at <http://blogs.tdl.org/metadata>.

Technical Interest Group

The Texas Digital Library Technical Interest Group (TDL-TIG) brings together web developers, programmers, system administrators and others who are involved in the implementation of TDL services at their institutions.

The goal of the TDL-TIG is to provide a forum for:

- Sharing technical problems and receiving technical help and advice from other TDL members.
- Helping the TDL development and production teams identify and prioritize outstanding technical issues.
- Helping the TDL development and production teams develop a service model for hosted TDL services.
- Updating other members on the current status of their services, obstacles encountered, successes achieved, and lessons learned.

The initial format for the TDL-TIG is a listserv open to any TDL member and a wiki that can be used for sharing information and collaborating. At least one meeting will take place each year during the Texas Conference on Digital Libraries and at other times if possible and desired.

The TDL-TIG wiki is located at <http://wikis.tdl.org/tig>.

To join the TDL-TIG e-mail list, e-mail the TDL-TIG coordinator at tdltig@tdl.org.

Texas Conference on Digital Libraries

Each spring, the TDL hosts the Texas Conference on Digital Libraries, which explores issues relevant to digital libraries and digital scholarly communication in Texas institutions of higher learning. The conference is held on the University of Texas at Austin campus.

TCDL provides members with important opportunities for:

- Interaction with other TDL member institutions and TDL staff.
- Promotion of activities and projects happening at each member institution.
- Professional development around digital library topics.
- Staying up-to-date with the activities of the Texas Digital Library.

TCDL also serves as a convenient time for meetings of user groups and working groups.

For more information about the Texas Conference on Digital Libraries, visit the TCDL website at <http://conferences.tdl.org/TCDL>.

Training

The Texas Digital Library provides low-cost training to member faculty and staff using a unique model in which courses are both taught and attended by TDL members. As a result, the TDL training program is both an opportunity for members to get the most out of TDL services and to give back to the consortium.

Each term (fall, spring, summer), a slate of courses covering various TDL services is offered. TDL member institution Baylor University hosts the courses on its campus and provides online registration.

Each course is taught by a TDL staff member or by staff/faculty at a member institution. Each trainer has a co-teacher from another institution who assists the main trainer and, the next time the course is offered, teaches the course himself or herself (with a new co-teacher). This “tag-team” model creates campus-level experts at each TDL institution, and at the same time fosters collaboration among TDL members.

More details about training courses normally offered by the TDL are available on page 37 of this packet. Additional information can be found at <http://www.tdl.org/training>.

TDL Communications

Getting in touch with the TDL

Most general communication can be directed to the TDL program coordinator at *info@tdl.org*. Requests for technical support should go to the TDL Helpdesk at *support@tdl.org*.

Additionally, contact information for TDL employees is available on the website at *http://www.tdl.org/about-tdl/staff/directory*.

Getting news about the TDL

The TDL has numerous communications channels for keeping up with what's happening in the organization and at member universities.

These include:

- TDL-Announce listserv – A general list used for out-going announcements. To join, e-mail *info@tdl.org* or go to *https://utlists.utexas.edu/sympa/info/tdl-announce* and click SUBSCRIBE.
- TDL Blog – The TDL Blog posts stories about the TDL and member projects, as well as news and commentary from around the web that touches on digital library issues. It is located at *http://www.tdl.org/blog*.
- TDL Update – Published 10-11 times per year, the TDL Update newsletter is distributed through the TDL-announce list and is available on the website at *http://www.tdl.org/news/newsletters*.
- Social Media – Become a friend on Facebook, or follow the TDL on Twitter @TxDigLibrary.
- JIRA Studio – The software development and production teams use JIRA Studio to manage development and support efforts. Members can view progress on projects and technical support requests by going to *http://texasdl.jira.com/*.
- Other listservs – TDL has additional specialty listservs available to working groups and user groups. These lists are discussed in greater detail throughout this guide.
 - Shibboleth Users List
 - Vireo Users Group List
 - Metadata Working Group List
 - Technical Interest Group List

TDL In-Depth

Technical Infrastructure

For each TDL member institution, TDL hosts two installations of DSpace, one “labs” instance that members can use for experimentation, planning, and training and one “live” instance. The URLs for these repositories follow the forms:

“Labs” repository = *http://labs.tdl.org/<institution>-ir*
 “Live” repository = *http://repositories.tdl.org/<institution>-ir/*

Similarly, the TDL hosts dual instances of Vireo ETD software for each member institution. The URLs for these services follow the forms:

“Labs” Vireo = *http://labs.tdl.org/<institution>-etd/*
 “Live” Vireo = *http://etd.tdl.org/<institution>-etd/*

TDL runs a single production installation for each of the other scholarly communication services:

Open Journal Systems (electronic journals): *http://journals.tdl.org/index*
 Open Conference Systems (conference management):
http://conferences.tdl.org/index/
 WordPress (blogs): *http://blogs.tdl.org /*
 WordPress (sites): *http://sites.tdl.org/*
 Mediawiki (wikis): *http://wikis.tdl.org/*
 Faculty directory: *http://www.tdl.org/directory/*

Each of these installations supports multiple instances; for example, the single Open Journal Systems installation supports multiple electronic journals.

TDL also runs “labs” instances of OJS, OCS, and Mediawiki, which are used for training and experimentation.

TDL has two (essentially) identical servers that run all software installations: one for production repositories, the other for “labs” instances. Each server is a Sun T5220 with one physical and 64 virtual CPUs and 32 GB RAM running Solaris 10. Each of these two machines is backed by its own database server, each of which is a Sun V490 with four physical CPUs and 16 GB RAM running Solaris 10. The database servers use two filers, containing a total of 112 disks comprising four aggregates with a total of approximately 25 TB capacity.

Shibboleth Federated Authentication

The Texas Digital Library uses Shibboleth, an Internet2 federated identity architecture, to manage authentication of users who access TDL services. Shibboleth is a distributed authentication software that enables federated identity management and cross-domain single sign-on, meaning that users within the Shibboleth Federation can log in to TDL services using their own university credentials.

How does Shibboleth work?

TDL provides multiple services, including repository services, scholarly publishing services, and preservation services. Each of these “service providers” interacts with users from academic institutions both within and outside the State of Texas. Participating academic institutions, acting as “identity providers” are able to supply the identity of their students, faculty, and staff so that they are able to access the services offered by TDL.

The TDL Shibboleth architecture is structured to include several service providers (SP), several identity providers (IDP), and a single “where are you from” (WAYF) service. Each of these components work together using the Shibboleth authentication system to provide a secure distributed authentication mechanism across the State of Texas. This process is described below and in Figure 2:

1. Request

First the user will request access to a resource provided by one of TDL’s services. If authenticated access is required, the user will be automatically redirected to the “where are you from” service. At the WAYF the user will be presented with a list of participating institutions.

2. Source

Once at the WAYF, the user selects his or her home institution, and will be directed to an authentication website hosted by that institution. The user will enter his or her username and password using his or her local identity.

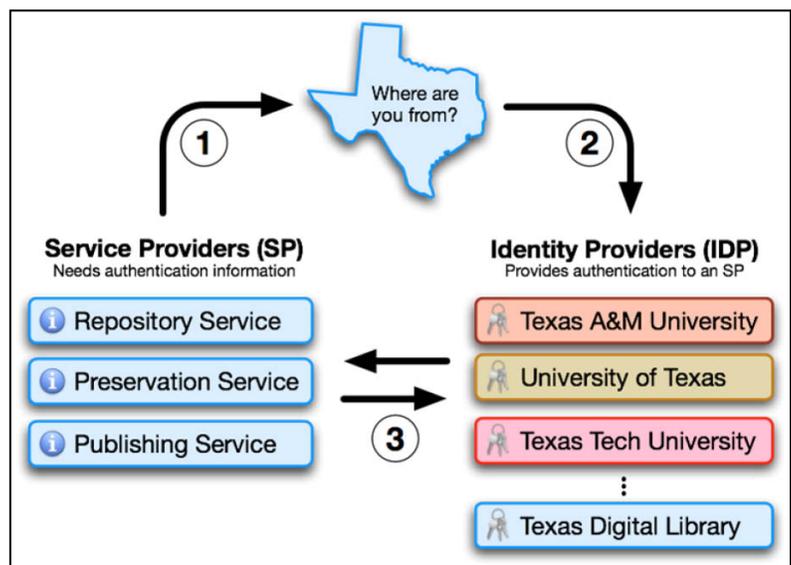


Figure 2: Shibboleth

A user may select TDL at the WAYF to provide non-validated identities to those who require access to TDL resources but are not from a participating institution. (For example, a non-TDL user might require access as a reviewer for a TDL journal.) In this case, the TDL identity provider is able to act as the home institution.

3. Delivery

Finally, after successfully authenticating with his or her home institution, the user is returned to the service provider. The user has now been authenticated using Shibboleth and is able to use the resource provided by TDL.

LEARN Shibboleth Federation

In October 2009 TDL announced a partnership with the Lonestar Education and Research Network (LEARN) to collaborate on networking projects in service to Texas researchers and academics. One key part of the collaboration has been the development of a statewide Shibboleth Federation managed by LEARN.

The Shibboleth Federation sets the policies and manages the relationships among TDL service providers and its members' identity providers. In the LEARN Federation, LEARN mediates the relationships between TDL services on one side and member identity providers on the other, essentially "vouching" that the information provided by identity providers is trustworthy.

TDL members within the LEARN Federation will deal directly with LEARN regarding issues with Shibboleth, NOT with the Texas Digital Library. Paul Caskey, of the University of Texas System, is managing the Federation for LEARN and will be the contact person for these issues.

LEARN Federation Contact

Paul Caskey
LEARN Federation/UT System Technology Architect
512-499-4591
pcaskey@utsystem.edu

Data Management

Identity providers assert that, to the best of their knowledge, all attributes sent to service providers in the federation accurately represent information about the authenticated individual accessing the service provider resource.

Service providers agree to securely maintain any attributes received and not share these attributes with other organizations without both the user's and institution's consent.

Attributes

The TDL specifies a set of attribute definitions to support basic attribute-based authorization. These attributes will be used to support the services provided within the TDL consortium.

Two levels of attributes exist: *required* and *recommended*. Identity providers must be able to supply all attributes marked as *required* to any service provider that requests the attribute.

Identity providers need not be able to supply all *recommended* attributes, but when they do the meaning of that attribute must match the definition provided.

The list of attributes required by TDL service providers can be found on the TDL website at <http://www.tdl.org/shibboleth>.

Communication of Shibboleth Changes

Because of the distributed nature of Shibboleth, changes to any part can affect how the entire system works. As a result, it is important that any time an identity provider manager at a member institution, or the service provider manager at TDL, make a change to their Shibboleth instances, they communicate these changes to the Federation. This includes changes to the attributes released by the identity provider or upgrades to a new version of Shibboleth.

To prevent problems, TDL encourages its members to communicate any changes they might make to Shibboleth to the LEARN Federation. To facilitate this communication, the TDL has set up a mailing list for identity provider managers to post questions, announce changes, and discuss other Shibboleth-related issues. The list will be monitored by Paul Caskey of LEARN, as well as by technical personnel at the TDL.

Anyone interested in joining the TDL Shibboleth Users List can e-mail TDL at info@tdl.org.

TDL Shibboleth Users List

- **For whom?** Identity provider managers and library technical personnel.
- **For what?** Communicate changes to Shibboleth installations and ask questions.
- **How to join?** Email TDL at info@tdl.org.

Member Hosting of TDL Services

TDL hosts all electronic journals, conferences, blogs, wikis, and sites, as well as “labs” installations of Vireo (ETD management) and DSpace (institutional repositories) for each

member institution. In some cases, TDL can also host production instances of Vireo and DSpace for members, but some institutions prefer maintaining local control over these systems.

Members choosing to host their own institutional repositories and Vireo installations are responsible for the maintenance of all hardware and software associated with these technologies. Some things to consider in the decision-making process include:

- *Staffing:* Do you have the staff in place to install and maintain the services effectively?
- *Hardware:* Do you have the hardware resources to host?
- *Shibboleth:* In the Shibboleth distributed system, members who host their own TDL services are responsible for serving not just the identity provider function for their institutions but also the service provider function for each TDL service they host.

Member institutions hosting their own institutional repositories and Vireo installations have access to important TDL support services, including the following:

- TDL training courses.
- TDL helpdesk support.
- TDL user groups.

TDL Development Methodologies

Scrum

The TDL software development team primarily uses the Scrum methodology in its development projects. Scrum is an agile software development methodology that emphasizes short development cycles (or “sprints”) that allow for flexible and rapid software creation.

Some characteristics of Scrum development include:

- Self-organizing, cross-functional teams
- A focus on producing the most important functionality first
- Opportunities for self-correction and handling evolving requirements
- Transparency within the organization about process and status of projects

Below are some common Scrum terms and concepts that the TDL uses to discuss its development projects.

User story

A lightweight form of a software system requirement. A user story is usually one or two sentences and explains some functionality that addresses a “business need” of the customer/product owner. User stories are accompanied by acceptance criteria that allow developers and the product owner to determine when a user story has been successfully completed.

Following is an example of a user story from the Preservation Network product backlog along with its corresponding acceptance criteria:

User story: “As a content collector I want to nominate a collection for preservation.”

Acceptance criteria: (1) An authorized person can nominate a collection to the PresNet admin. (2) A collection is either a file system hosted at TDL or a URL to a DSpace repository. (3) The PresNet admin can get a list of all collections nominated or preserved through a command line.

Product owner

The customer, or the person representing the business, customers, or users. Sometimes described as the “single choppable neck,” this person helps develop and prioritize user stories and signs off on the successful (or not) completion of user stories at a sprint review.

Sprint

A period of development time that begins with a sprint planning session and ends with a sprint review (aka a “demo”). In the sprint planning session, the team, with the

product owner, decides which user stories they will address and complete. At the end of a sprint, the team holds a public sprint review, demonstrating the completed user stories to the product owner and other interested parties. Sprints can last from one week to four weeks.

Product backlog

The complete list of all functionality (i.e. user stories) desired in any given software product.

Daily scrum

During a development sprint, team members meet daily (for a few minutes only) and share (a) what user stories they worked on the previous day (b) what they will work on that day and (c) what, if any, impediments are hindering their progress.

Task board or Scrum board

A visualization of the work undertaken in the sprint, the Task Board can be a white board, bulletin board, or software tool where user stories are categorized in various states of completion, such as "to do," "in progress," or "done." As user stories are picked up and completed, they move from one state to another.

The Task Board creates a transparent window onto the work that is being done. To make this window available to all TDL members, the TDL uses an online Task Board through JIRA Studio, through which any TDL member can see the status of development projects, feature requests, or bug fixes at any time (see "More Information" below).

Scrum-ban

Some projects undertaken by the TDL technical teams, particularly maintenance and testing projects, use a related methodology called Scrum-ban. (The term itself is a combination of Scrum and "Kanban," a production scheduling methodology used initially in auto manufacturing.)

Scrum-ban does not use the time-limited sprints of Scrum, but it does use other Scrum practices, such as daily meetings and visualization of work through a Task Board, where tasks are moved through defined stages, such as "to do," "in progress," or "done."

More information

The TDL uses a hosted software suite called JIRA Studio to manage its development efforts. Parts of this suite, including Task Boards for each development project, are viewable without authentication. You can find TDL's JIRA Studio at <http://texasdl.jira.com/>.

Services

DSpace Repositories

The Texas Digital Library (TDL) provides DSpace repositories for each of its member institutions; these repositories provide a venue for the archiving and dissemination of published and unpublished research, datasets, institutional materials, image collections, and any other materials the institutions choose to ingest. Using DSpace, the Texas Digital Library also maintains the federated Texas ETD Repository and is developing a Texas Learning Object Repository and a Texas Water Digital Library.

About DSpace

DSpace is the most widely used open-source software for institutional and open access repositories around the world, with more than 750 deployments. DSpace contains built-in workflows for submitting data in any file format (including images, datasets, documents, and audio and video files) and makes that data easily discoverable and accessible on the Web. Content stored in a DSpace repository is indexed by commercial search engines (such as Google) and OAI-PMH harvesters (such as OAIster) and can be accessed via the repository's search and browse functions. DSpace ingestion, management and retrieval functions can be seen in Figure 3 on the following page.

DSpace Organization

A DSpace repository is organized into a simple hierarchy of Communities and Collections.

A Community is a group of people who contribute content to the repository. A Community might be a university department, laboratory, research center, or administrative unit. Each Community can set its own guidelines for deposit and access independently.

Communities create and maintain Collections, which contain content files. A Community might have one or multiple Collections, and two Communities (perhaps two collaborating research groups) may share a Collection.

DSpace Repository Uses

- Create a record of the scholarly output of your university, including datasets, audio-visual content, published and unpublished work, and presentations.
- Make publicly funded or non-profit-funded research available on an open access basis.
- Create a collection of electronic theses and dissertations.
- Capture and disseminate courseware and learning objects.
- Archive institutional materials like yearbooks, annual reports, or alumni publications.
- Create special online image collections.

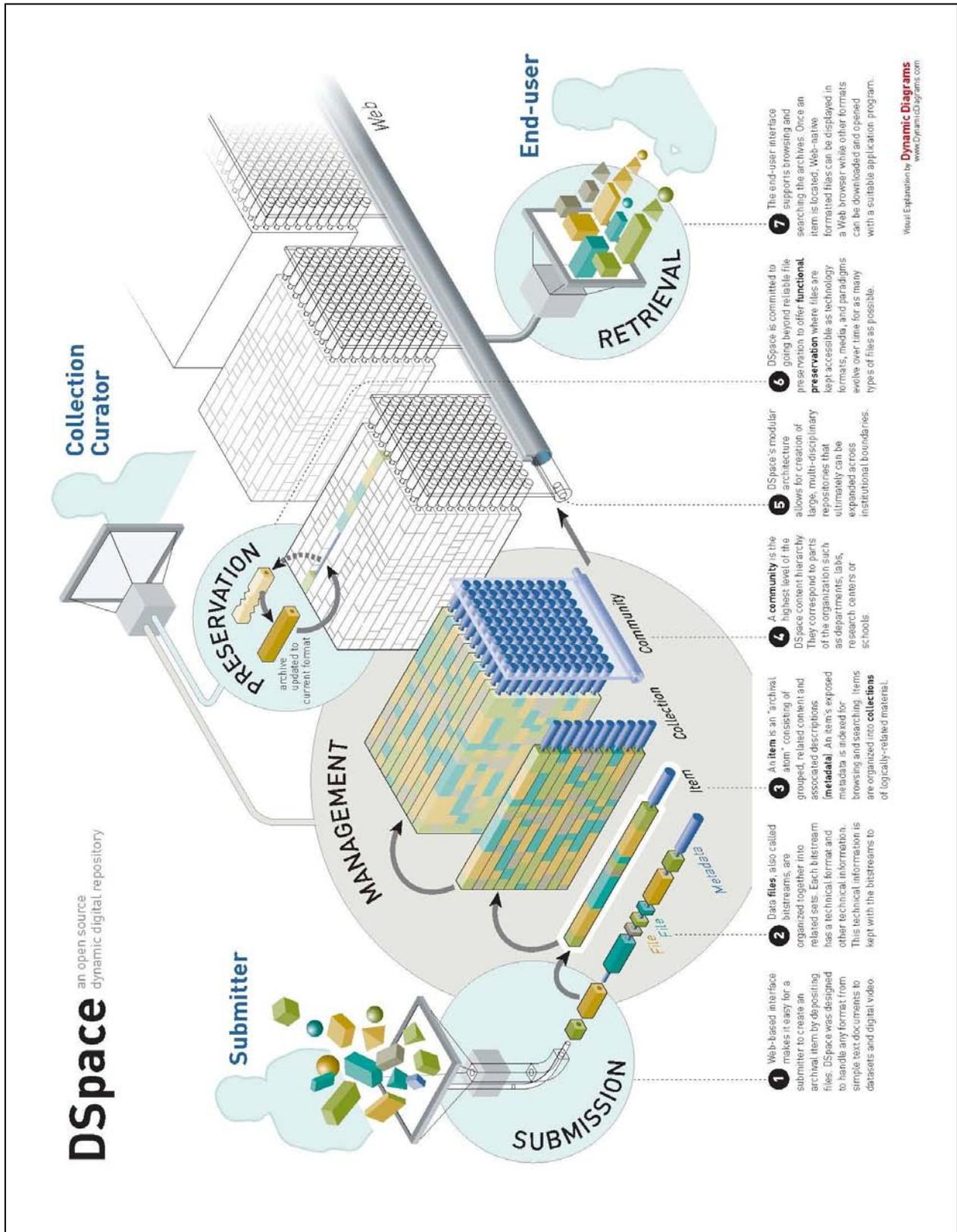


Figure 3: How DSpace Works

TDL DSpace Customizations and Architecture

For its hosted institutional and subject repositories, the Texas Digital Library runs a custom version of DSpace 1.6.2 (DSpace 1.6.2-TDL). Customizations made by TDL to the original DSpace version include:

- A customized look-and-feel for each hosted repository using the Manakin XML interface.
- Integration with Shibboleth federated authentication software.
- OAI-ORE harvesting capabilities for federating metadata and/or files from multiple repositories into single collections.
- SWORD deposit capabilities for pushing files from TDL's Vireo electronic thesis and dissertation management application to an institutional repository.
- Preservation of all TDL-hosted repository content in the TDL Preservation Network.

DSpace/Repository Resources

- Documentation on the TDL Wiki – <https://wikis.tdl.org/tdl/Repositories>
- TDL training – <http://www.tdl.org/training>
- TDL helpdesk— <http://www.tdl.org/support/helpdesk/> OR support@tdl.org
- Technical Interest Group – https://wikis.tdl.org/tig/Main_Page
- DSpace organization - <http://www.dspace.org/>

Vireo Electronic Thesis and Dissertation Management System

Vireo is the Electronic Thesis and Dissertation (ETD) Submission and Management System from the Texas Digital Library. Vireo allows students to easily submit their theses and dissertations online and provides expert management software for graduate offices and libraries to move the ETD through the approval workflow and publish it in an institutional repository.

The Texas Digital Library (TDL) created Vireo with partial grant funding from the Institute of Museum and Library Services (IMLS Grant #: LG-05-07-0095-07). Vireo was developed using DSpace Manakin's capabilities for creating new workflow functionality within DSpace.

All source code, documentation, and training materials related to Vireo were made publicly available under an open-source license in September 2010.

Online Student Submission

Vireo provides a simple and intuitive interface through which students can submit their theses and dissertations online.

The submission interface features:

- An easy five-step process.
- Autofill capability for personal information to reduce typos.
- Embargo options for any document.
- Ability to send ETDs to UMI Dissertation Publishing.

Workflow management for graduate schools and libraries

Vireo's expert interface lets graduate school staff and librarians shepherd theses and dissertations through the ETD workflow, from submission to approval to publication in an institutional repository.

Additionally, TDL has developed a set of metadata guidelines for ETDs that allows members to share metadata with the Texas ETD Repository (see following section).

The workflow management interface provides useful tools for:

- Tracking and managing the manuscript review process.
- Creating flexible workflows using customizable filters.
- Exporting documents and metadata.
- Managing communications with all participants, including students, faculty advisors, and staff.
- Publishing ETDs to the institutional repository.

Vireo Deployment Checklist

Deploying Vireo requires the involvement of many different constituencies within an institution, including students and faculty, graduate school staff, librarians, and technical staff. Institutions planning to deploy Vireo should allow ample time to set policy, undergo training, plan communications strategy, and develop a plan for pilot testing the software.

The list below is not a comprehensive list of necessary steps but does provide some guidance on issues that need to be addressed when implementing Vireo.

First Steps

- ✓ Identify project lead and major stakeholders from library, thesis office, and IT services.
- ✓ Schedule a Vireo demo and understand the Vireo workflow.
- ✓ Decide whether to host Vireo at TDL or on institutional servers using institutional staff.
- ✓ Understand technical requirements for integrating Vireo with ID management (i.e. Shibboleth).
- ✓ Understand Vireo's ETD metadata standard.
- ✓ Schedule relevant grad school and library staff for TDL Vireo training.
- ✓ Begin working in Vireo "labs" installation.
- ✓ Determine deadlines for pilot testing and full implementation.

Policy & Workflow Planning

- ✓ Determine embargo types and duration.
- ✓ Determine naming conventions for colleges, departments, and graduate schools.
- ✓ Define workflows for grad school staff, catalogers, librarians, faculty, and students.
- ✓ Determine library workflow for cataloging ETD records and making changes to metadata within ETD records published in the IR.
- ✓ Determine Vireo Manager, who has special privileges for configuring Vireo.
- ✓ Determine UMI/ProQuest workflow.

Communications planning

- ✓ Plan changes to graduate catalog and website, etc.
- ✓ Plan communication with college and department staff regarding new policies and procedures.

- ✓ Create materials for instructing students and faculty on using Vireo and other elements of your ETD program (embargoes, ProQuest options, etc.)

Testing & Implementation

- ✓ Use Vireo labs instance to test policy and workflow decisions.
- ✓ Integrate Vireo with ID management and authentication software (Shibboleth).
- ✓ Create Vireo settings, email templates, and saved filters
- ✓ Install Vireo (only if running Vireo on institutional hardware)
- ✓ Undertake pilot testing of Vireo with limited group of students.
- ✓ Launch new websites and other communications initiatives.
- ✓ Provide ongoing training for all users.
- ✓ Prepare for TDL harvesting of ETDs to federated repository.

Vireo Resources

- Vireo Users Group – <http://blogs.tdl.org/vireo>
- Vireo documentation on the TDL Wiki – <http://wikis.tdl.org/tdl/Vireo>
- Texas ETD Association – <http://txetda.wordpress.com>
- TDL training – <http://www.tdl.org/training>
- TDL Helpdesk—support@tdl.org OR <http://www.tdl.org/support/helpdesk/>

Texas ETD Repository

The TDL harvests electronic theses and dissertations (ETDs) housed in member institutional repositories and collects them in a single, federated collection, providing a single point of search for thousands of scholarly works produced at Texas universities. The Texas ETD Repository is located in the TDL Repository at <http://repositories.tdl.org/tdl/>.

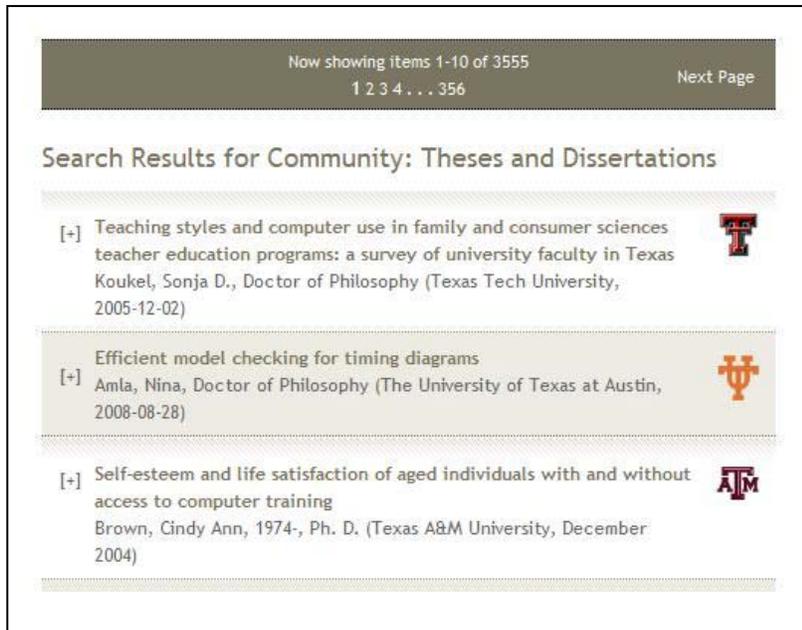


Figure 4: Federated ETD Collection

Within in the Texas ETD Repository, the home institution for each ETD is clearly identifiable as seen in the figure above.

OAI-ORE Harvesting

TLD harvests ETDs from member repositories using two protocols developed by the Open Archives Initiative (OAI). Using the OAI Protocol for Metadata Harvesting (OAI-PMH), the TDL can collect metadata associated with the ETD, as well as the “handle” (or permanent web address) that links to the document. In this configuration, the Texas ETD Repository does not collect the bitstream (or file), which remains solely in the member institutional repository. The TDL also has the capability to collect the file itself, along with related metadata, using OAI’s Object Reuse and Exchange protocol (OAI-ORE).

TDL ETD Metadata Standard

The TDL has developed a metadata standard for ETDs that ensures the successful harvesting of metadata to the Texas ETD Repository. The standard is outlined in the document *Texas Digital Library Descriptive Metadata Guidelines for Electronic Theses and Dissertations*, which is available on the TDL website at <http://www.tdl.org/about-tdl/publications/>.

Preservation Network

The Texas Digital Library (TDL) provides digital resources for higher education faculty to make scholarship openly available. However, digital artifacts can be fragile, and the fast pace of change requires planning to ensure that files created now will be accessible years into the future. Since its inception, the TDL has committed itself to providing a Preservation Network infrastructure that can address these preservation issues.

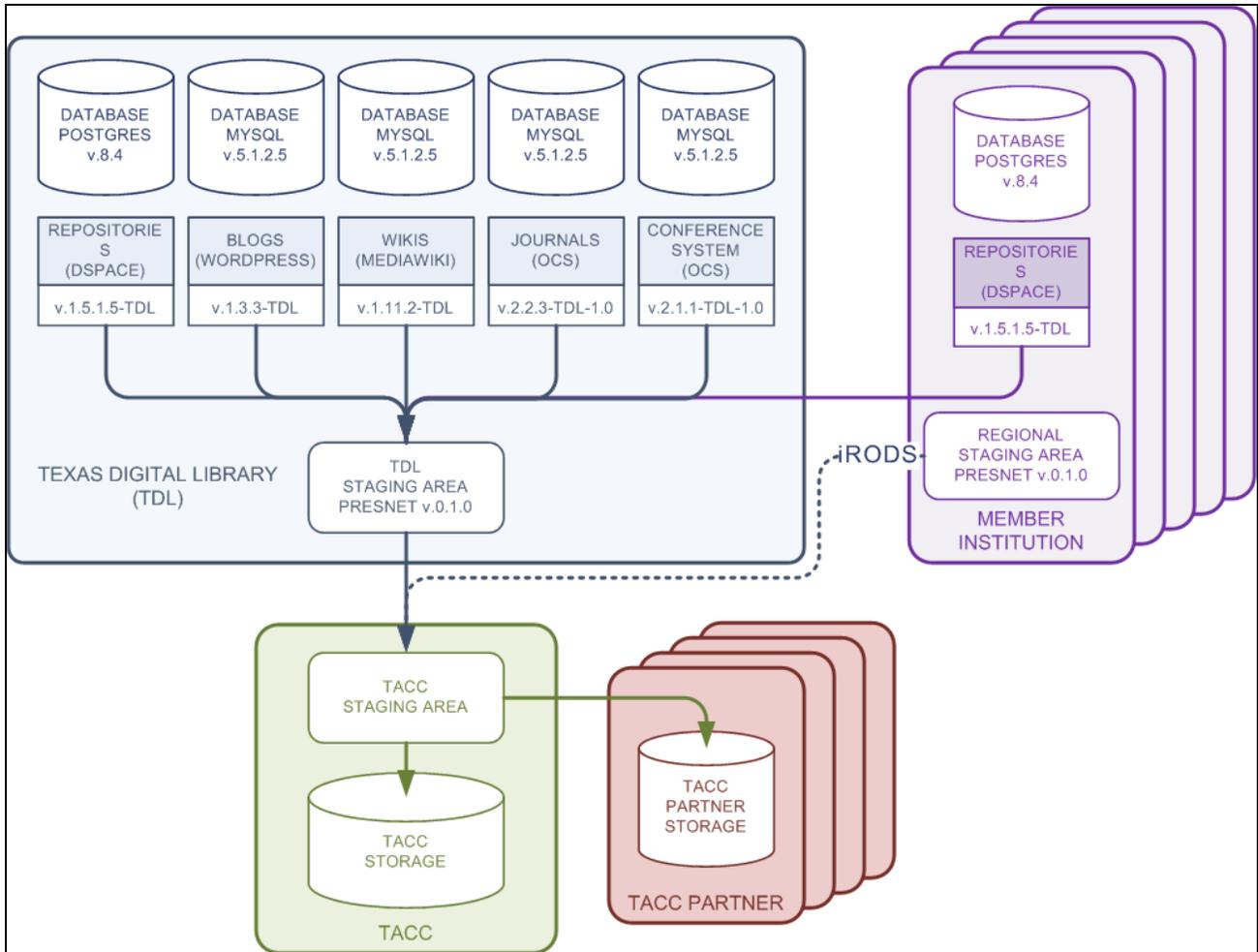


Figure 5: TDL Preservation Network

The TDL Preservation Network (or PresNet) has the capability to package and preserve in a dark archive all data deposited in TDL-hosted DSpace repositories, as well as data stored in other TDL applications such as its Open Journal Systems installation.

Texas Advanced Computing Center

The Texas Digital Library packages and moves TDL-managed assets from TDL servers to its partner organization, the Texas Advanced Computing Center (TACC). TACC is a world-class advanced computing facility located on the University of Texas at Austin campus. Once the TDL assets arrive, TACC replicates them at its partner data centers at geographically dispersed locations. (See Figure 5 above.)

The TDL currently contracts for 160TB of storage at TACC.

Member Allotments

Available space in TACC is allotted to TDL member institutions based on membership level; however, institutions have the ability to purchase extra storage space as needed.

Founding members:	8 terabytes per year
Associate members:	4 terabytes per year
Affiliate members:	2 terabytes per year

Integrated Rule-Oriented Data System (iRODS)

The TDL uses the Integrated Rule-Oriented Data System (or iRODS) to package data and push it from TDL servers to the Texas Advanced Computing Center. iRODS, an open-source application, is a “data grid software system” that can automate some preservation-related tasks. It was developed by the Data Intensive Cyber Environments (DICE) Center at the University of North Carolina School of Information and Library Science and the Renaissance Computing Institute (RENCI) at UNC Chapel Hill and the University of California San Diego. iRODS has an active user base, some of whom are deploying the software in similar ways to the TDL.

Ongoing Development of PresNet

While all TDL assets can currently be packaged, archived, and safeguarded via the Texas Advanced Computing Center and its partners, development of PresNet by the TDL team is ongoing. Building on the foundational preservation infrastructure now in place, TDL can develop additional preservation processes and technologies that meet the business needs of its member institutions.

PresNet Users Group

The PresNet Users Group helps to guide development of preservation policy and provides feedback to the TDL development team about member needs for preservation infrastructure.

PresNet Resources

- PresNet Users Group – https://wikis.tdl.org/tdl/Preservation_Network
- PresNet in the TDL Wiki – https://wikis.tdl.org/tdl/Preservation_Network
- More about iRODS – <https://www.irods.org/>
- More about TACC – <http://www.tacc.utexas.edu/>

Other Scholarly Communications

Electronic Journals

With TDL Electronic Journals, faculty members, libraries, and universities can produce refereed, open-access scholarly journals, ensuring the availability of important scholarship to researchers around the world. TDL Electronic Journals use Open Journal Systems (OJS), an open-source software developed by the Public Knowledge Project, a research and development initiative that produces additional open-source tools for online research dissemination, including the TDL's conference management tool Open Conference Systems.

About TDL Electronic Journals

Using Open Journal Systems software, faculty at TDL member institutions can set up and publish an online journal (or migrate an existing journal) without any costs for the software or TDL technical assistance. The OJS software helps with every stage of peer-reviewed publishing, handling online submissions from authors, managing the peer-review process, publishing issues online, and indexing content – all through a web-based interface.

Using OJS, journal managers and editors can:

- Customize submission requirements, the peer review process, and the journal's appearance.
- Perform all journal management tasks online.
- Set up a subscription-based journal with delayed open access options.
- Provide comprehensive indexing of content.
- Use OJS e-mail notification and commenting tools.

TDL Electronic Journals also become part of the TDL Electronic Press and are indexed by open-access harvesters so that all content is widely available online.

How To Set Up an Electronic Journal

Faculty or staff members at TDL member institution can begin the process of creating an e-journal by contacting TDL at *info@tdl.org*.

E-journal Resources

User Documentation – TDL Wiki: <http://wikis.tdl.org/tdl/Journals>

TDL Helpdesk – <http://www.tdl.org/support/helpdesk> OR support@tdl.org

Training – <http://www.tdl.org/training/ojs-training/>

OJS on the Public Knowledge Project site – <http://pkp.sfu.ca/?q=ojs>

Online Conference Management

TDL Online Conference Management uses Open Conference Systems, an open-source Web publishing tool developed by the Public Knowledge Project. With TDL Online Conference Management, faculty can set up a complete web presence for a conference and handle many of the clerical and managerial tasks associate with running an academic without installing any software.

About Online Conference Management

Among other things, Online Conference Management services from the TDL provide:

- A conference website.
- The ability to create multiple occurrences of the conference (e.g., multiple years for an annual conference).
- Tools for managing the paper submission and review process online.
- Resources for online publication of conference proceedings.
- An online registration system.
- Online post-conference discussion capabilities.

How To Set Up a Conference Website

Faculty or staff members at TDL member institution can begin the process of creating an online conference system by contacting TDL at info@tdl.org.

Online Conference Management Resources

User Documentation – TDL Wiki: https://wikis.tdl.org/tdl/Online_Conference_Management

TDL Helpdesk – <http://www.tdl.org/support/helpdesk> OR support@tdl.org

Training – <http://www.tdl.org/training/ocs-training/>

OCS on the Public Knowledge Project site – <http://pkp.sfu.ca/?q=ocs>

Blogs

The TDL blog service uses WordPress, an open-source blogging platform that is easy and intuitive to use. The TDL hosts and maintains the WordPress software, but individual users have administrative control over their own blogs – how they look and function, how comments are moderated, who is listed on blog rolls, and more.

About TDL Scholarly Blogs

With TDL Scholarly Blogs, faculty members can:

- Promote their own work and the reputations of their universities.
- Become part of a community of Texas scholars that promotes the standing of scholarly institutions in Texas.
- Benefit from feedback on and discussion about their ideas, research findings, and writing.
- Disseminate their work to a wide audience, including readers outside academia.
- Support their universities' wider missions of teaching, research, and outreach.

How to Set Up a Blog

Faculty and staff at TDL member institutions can use the automated “services request system” on the TDL website to set up a new blog. This feature can be found at <http://www.tdl.org/services-request/>.

Scholarly Blog Resources

User Documentation – TDL Wiki: <http://wikis.tdl.org/tdl/Blogs>

TDL Helpdesk – <http://www.tdl.org/support/helpdesk> OR support@tdl.org

Training – <http://www.tdl.org/training/blog-training/>

WordPress site – http://codex.wordpress.org/Main_Page

Sites

TDL faculty members know WordPress software as a blogging tool for chronicling their research activities, sharing news, and interacting with others online.

With its capabilities for creating web pages and for adding rich functionality through plugins and widgets, however, WordPress is more than just a blogging software. It can also be used to create full-featured websites (like the TDL website, which uses WordPress). As a result, TDL now offers “TDL Sites,” a new service using a familiar application.

About TDL Sites

With TDL Sites, members can create a WordPress website hosted by TDL. TDL Sites can be used to create an information website about a research project, to communicate with a project group, or any other scholarly purpose members can dream up.

Sites vs. Blogs: What’s the difference?

Technically, there isn’t much difference. Both the TDL Blogs installation and the TDL Sites installation use WordPress 3.0. You can create pages and blog posts through both services.

The difference lies in the overall purpose of the website. With TDL Blogs, the emphasis is on frequent, short bursts of content – think of it as a journal or scrapbook for posting thoughts, questions, or news items from other sources. TDL Sites are ideal for content that is relatively static, when the emphasis is on providing more substantial content on web pages, rather than in short, chronological posts.

How to Set Up a Site

Faculty and staff at TDL member institutions can request a new Site by e-mailing info@tdl.org.

Sites Resources

User Documentation – TDL Wiki: <http://wikis.tdl.org/tdl/Sites>

TDL Helpdesk – <http://www.tdl.org/support/helpdesk> OR support@tdl.org

WordPress site – http://codex.wordpress.org/Main_Page

Wikis

Wikis elevate the interactive potential of Internet communication beyond clicking a link and reading a page, making it possible for communities of users to collaboratively create, connect, and revise Web pages on an on-going basis.

About TDL Research Wikis

The Texas Digital Library offers scholars and researchers at TDL member institutions the opportunity to set up their own Research Wikis, hosted by the TDL, to share knowledge and collaborate in any of the myriad ways wikis allow.

Because of the flexible, user-defined nature of wikis, the number of possible uses for the technology is limited only by users' imaginations. For example, wikis can be used to:

- Manage a research project that requires collaboration among far-flung participants.
- Collaboratively create a knowledge base for any topic or project.
- Create annotated reading lists.
- Maintain lists and link libraries.
- Create collaboratively edited online books.

TDL Research Wikis use MediaWiki software, the same platform that the world's best-known wiki – Wikipedia – is based on. MediaWiki is a powerful platform for creating wikis that does not require technical expertise in XHTML or Web design.

The Texas Digital Library staff hosts and maintains the MediaWiki software, while users have control over how the Research Wiki is set up and used.

How to Set Up a Wiki

Faculty and staff at TDL member institutions can use the automated "services request system" on the TDL website to set up a new wiki. This feature can be found at <http://www.tdl.org/services-request/>.

Research Wiki Resources

User Documentation – TDL Wiki: <https://wikis.tdl.org/tdl/Wikis>

TDL Helpdesk – <http://www.tdl.org/support/helpdesk> OR support@tdl.org

Training – <http://www.tdl.org/training/wiki-training/>

MediaWiki site – <http://www.mediawiki.org/wiki/Help:Contents>

Faculty Directory Homepages

Faculty and staff at TDL member institutions can communicate their participation in the TDL community with a homepage in the TDL Faculty Directory. The homepages provide a resource for finding other TDL members, as well as for promoting the scholarly work and Web presence of TDL member faculty.

Homepages in the Faculty Directory can include contact information, biographies and curricula vitae, and links to other Web sites, including blogs, wikis, and journals hosted by the Texas Digital Library.

How to Set Up a Faculty Directory Homepage

Faculty and staff at TDL member institutions can create a homepage by going to <http://www.tdl.org/directory/> and clicking the "Create or edit your homepage" link on the right side of the screen.

Faculty Directory Resources

User Documentation – TDL Wiki: https://wikis.tdl.org/tdl/Faculty_Directory
TDL Helpdesk – <http://www.tdl.org/support/helpdesk> OR support@tdl.org

User Support Services

Helpdesk

The TDL Helpdesk provides support to end users of TDL services and to administrators of those services at member institutions. The Helpdesk is located at and staffed by TDL member institution Texas Tech University.

Users can send questions to the Helpdesk via email at support@tdl.org or via a webform at <http://www.tdl.org/support/helpdesk/>.

Helpdesk hours are 8 AM-5 PM, Monday through Friday, except on holidays. The holiday schedule for 2010-2011 can be found at <http://www.tdl.org/support/holiday-schedule/>.

Requests submitted outside of normal business hours will be handled in the order in which they were received.

Support requests are handled by frontline helpdesk staff. If an issue requires programming work to resolve, it is escalated to the TDL Production team (first) and then, if necessary, to the TDL Software Development team.

TDL Wiki

The TDL Wiki contains resources for getting the most out of membership in the TDL consortium:

- User documentation for each TDL service.
- Information about TDL working groups and other ways to get involved in the TDL community.
- Suggested reading and conference information.
- Documentation about ongoing software development projects.

TDL members are welcomed and encouraged to edit and add content in the TDL Wiki that they believe will be useful to other members. Visit the TDL Wiki homepage to learn how to gain authorization to edit in the wiki.

The TDL Wiki can be found at <http://wikis.tdl.org/tdl>.

Training

The Texas Digital Library (TDL) welcomes faculty and staff from all TDL member institutions to participate in training classes covering TDL services and technologies. TDL training sessions are hosted by Baylor University in Waco and are open to staff from all TDL member institutions.

The TDL generally offers either half-day or full-day courses. All courses require registration and cost either \$25 (half-day) or \$50 (full-day).

Courses offered

Below is a sampling of courses routinely offered by TDL.

Introduction to DSpace. This course provides beginner-level DSpace users with an overview of the use and management of DSpace repositories. Learners will gain hands-on experience with DSpace and the use of the DSpace administrative interface.

Among the topics covered in the course are:

- How to create communities and collections.
- How to submit and proceed items through the repository workflow.
- Advanced topics such as batch importing of collections.

Possible audiences include library system administrators and repository managers.

DSpace Customization. In this course, learners will gain advanced skills for customizing DSpace repositories to fit the specific needs of their institutions. The course will include hands-on experience in a DSpace testbed.

Among other topics, the course will cover:

- Customization of the look-and-feel of the repository.
- Customizing the display of repository data.

Possible audiences for the DSpace Customization course include library system administrators and repository managers. It is recommended that learners have some previous working knowledge of DSpace.

Skill Level: Intermediate (Some previous use of DSpace is recommended.)

ETD Submission and Management with Vireo. In this course, learners receive an overview of Vireo, the system created by the Texas Digital Library for handling the online submission and management of electronic theses and dissertations (ETDs).

Learners will gain hands-on experience using Vireo to shepherd a thesis or dissertation through the entire ETD workflow.

Among the topics covered in the course are the following:

- Thesis submission using the student submittal interface.
- Processing and approval of the document using the staff administrative interface.
- Publishing the document in a testbed repository.

Recommended audiences for this course include support staff for Thesis Offices and Offices of Graduate Studies, as well repository managers and metadata librarians who handle ETDs.

Vireo for Advanced Users. Those with some experience in the Vireo ETD submission and management system will benefit from this advanced course on Vireo usage, which focuses on ETD policy formation and configuring Vireo to suit customized needs.

Skill Level: Intermediate to Advanced (Previous use of Vireo is required.)

Creating and Managing Electronic Journals with Open Journal Systems. In this course, learners gain an overview of the process for creating and configuring an Electronic Journal, as well as the editorial steps for producing an issue of the journal. Learners gain skills through hands-on activities in the open-source software used by the TDL, Open Journal Systems.

Among the topics covered in the course are:

- Journal roles (Journal Manager, Editor, Reviewer, etc.).
- Setting up a new journal.
- Creating journal policies.
- Customizing the look-and-feel of a journal.
- Managing the peer-review process for submissions.
- Managing the copyediting, layout editing, and proofreading of submissions.
- Creating and publishing a journal issue.

Individual faculty and staff members interested in starting an electronic journal are encouraged to attend this course. The course is also available to librarians and others wishing to support the creation of electronic journals by faculty at their institutions.

Skill Level: Entry

Online Conference Management with Open Conference Systems. In this course, learners will learn how to manage an academic conference online using open-source

Open Conference Systems software. Learners will gain experience in the software via instruction from an expert user and hands-on activities.

Among the topics covered in the course will be:

- Setting up a conference Web site.
- Determining a conference timeline.
- Managing registrations.
- Handling conference submissions and the peer review process.
- Publishing conference proceedings.

Faculty and staff members interested in using OCS to manage a conference are encouraged to attend this course. The course is also available to librarians and others wishing to support the use of OCS by faculty at their institutions.

Creating and Editing a TDL Research Wiki. In this course, learners receive instruction on the use, support, and promotion of wikis for scholarly and instructional purposes. Learners gain hands-on experience using MediaWiki, the open-source software employed by the TDL Research Wiki service.

Creating a Scholarly Blog. In this course, learners become familiar with the use, support, and promotion of blogs for research and other scholarly purposes in academic institutions. The course provides instruction and best practices for development of a blog in WordPress, the blogging software used by the TDL.

Detailed information about course schedules and content, as well as instructions on how to register can be found at <http://www.tdl.org/training>.

Appendices

Appendix A: Quick Reference

Appendix B: Building Local Support for TDL Services

Appendix C: TDL Brochures and Handouts

Appendix A: Quick Reference

Important Contacts:

Ryan Steans - TDL Program Coordinator	512-495-4403 info@tdl.org or ryan.steans@tdl.org
TDL Helpdesk	support@tdl.org or http://www.tdl.org/support/helpdesk/
Paul Caskey, LEARN Shibboleth Federation	512-499-4591 pcaskey@utsystem.edu
Laura Hammons (Vireo Users Group co-Chair, Thesis Office Director at Texas A&M University)	lhammons@tamu.edu
Jason Thomale (Vireo Users Group Co-Chair, Metadata Librarian at Texas Tech University)	j.thomale@ttu.edu
Michele Reilly (PresNet Users Group Chair, Head of Digital Services at University of Houston)	mreilly@uh.edu
Amanda Harlan (Metadata Working Group Chair, Metadata Librarian at Baylor University)	Amanda_Harlan@baylor.edu
Matthew Zimmerman (Technical Interest Group Chair, Manager of Digital Services and Technology Planning at UT Southwestern Medical Center)	tdltig@tdl.org

Where do I find...

General information about TDL and its services?	TDL Website: http://www.tdl.org
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User documentation for TDL services?	TDL Wiki: http://wikis.tdl.org/tdl
TDL news and discussion of issues relevant to TDL members?	TDL Blog: http://www.tdl.org/blog/
Information on all TDL Groups?	http://www.tdl.org/members/groups/
Vireo Users Group?	http://blogs.tdl.org/vireo/
TDL Technical Interest Group?	https://wikis.tdl.org/tig/Main_Page
Metadata Working Group?	http://blogs.tdl.org/metadata/about/
PresNet User Group?	http://wikis.tdl.org/tdl/Preservation_Network
Training information?	http://www.tdl.org/training/
Information on the TDL metadata standard for ETDs?	http://www.tdl.org/about-tdl/publications/ (See <i>TDL Descriptive Metadata Guidelines for ETDs</i>)
TDL's Shibboleth attribute release policy?	http://www.tdl.org/shibboleth
Information on TDL development projects	TDL Wiki: http://wikis.tdl.org/tdl

How do I....?

Report a bug?	Contact the Helpdesk at http://www.tdl.org/support/helpdesk/ or via email at support@tdl.org .
Get help using a TDL technology?	Contact the Helpdesk at http://www.tdl.org/support/helpdesk/ or via email at support@tdl.org .
Set up a blog or wiki?	Use the automated "service request system" at http://www.tdl.org/services-request/ or e-mail info@tdl.org .
Set up a new e-journal, conference management system, or website?	E-mail the TDL staff at info@tdl.org .
Set up a faculty webpage?	Go to http://www.tdl.org/directory/ and click "Create or edit your homepage."

Appendix B: Building the Local Support Structure for TDL Services

The Texas Digital Library functions as a distributed network of partner institutions. In order to gain the most value from the services we provide, each member institution should identify personnel who can perform the functions necessary to support these services at the local campus. The TDL provides the infrastructure support necessary to build and integrate the technology platform for the services we provide, but the key to successful deployment and use of these services lies within the partner organizations' ability to support them at the local level.

This document outlines the key roles and functions that we believe are necessary to successfully support TDL services. We have represented each role as a separate, full-time employee; however, few institutions have six full-time employees dedicated to TDL services, and it is possible to perform these functions with fewer personnel. Our purpose with this document is simply to identify the essential functions and suggest that those performing them be coordinated in a team setting.

Essential Functions

1. Director of Digital Initiatives
 - Takes responsibility for the team and sets policy for digital initiatives and programs.
 - Ensures that communication takes place and that work is well coordinated.
2. Repository Coordinator
 - Is responsible for day-to-day operations of the institutional repository.
 - Sets policies and procedures for deposit of content into the institutional repository and promotes its use.
3. Metadata Coordinator
 - Works closely with Repository Coordinator to ensure that metadata is developed and managed appropriately.
 - Keeps abreast of best practices, standards and issues regarding metadata development.
4. Software Application Developer (Programmer)
 - Takes primary responsibility for all aspects of the repository software, its implementation and maintenance.
 - Performs any programming necessary for loading collections or customizing the repository interface and functionality for local needs.
5. Outreach Coordinator
 - Promotes the effective use of repository and other scholarly communication services.
 - Identifies needs among potential content providers/users.

- Works with Repository Coordinator and other team members to develop repository policies and workflows and metadata standards.
6. Systems Administrator/Identity and Authentication Manager
- Works with library team and LEARN Federation to ensure that Shibboleth identity management systems are operating in cooperation with TDL service providers to allow access as appropriate to faculty and staff users.

The Bridge Group

In addition to assembling the staff necessary for supporting TDL services, member institutions should organize a Bridge Group. The role of the Bridge Group is to communicate and interpret the work of the TDL for the local institution and guide the integration of institutional repositories with the TDL.

Purpose of the Bridge Group

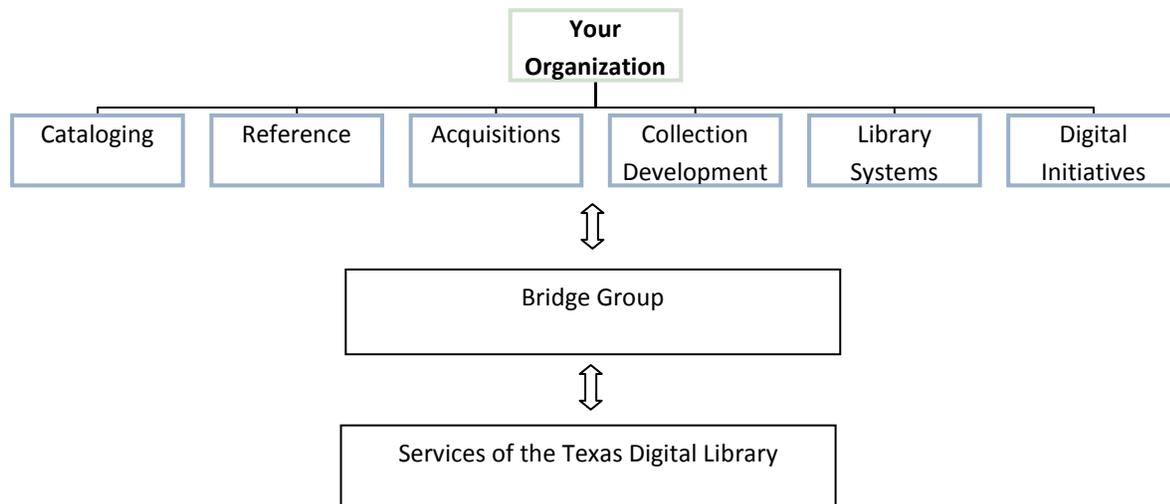
Act as a “change team” that helps the library adapt to the digital mindset becoming prevalent among students and younger faculty.

- Bridges essential library functions to TDL services and to your library.
- Encourages people who are interested and motivated to take advantage of TDL training opportunities

How does the Bridge Group function?

- Is managed at your university
- Includes representation from all areas of library

Assigns functions to staff through directors and supervisors so that work is not seen as “volunteer work.”



Appendix C: TDL Brochures and Handouts

1. About the Texas Digital Library handout: general information about the TDL for a general audience
2. Membership handout: information about becoming a member institution in the Texas Digital Library consortium
3. Vireo ETD Management handout: information about Vireos submission and management software for electronic theses and dissertations
4. Vireo Deployment Checklist: issues and tasks to consider when implementing Vireo ETD submission and management software
5. Faculty brochure (tri-fold): provides an overview of the Texas Digital Library for faculty members

The Texas Digital Library (TDL) is a consortium of higher education institutions in Texas that provides shared services in support of research and teaching.

The TDL **began in 2005** as a partnership between four of the state's largest universities: Texas A&M University, Texas Tech University, the University of Houston, and the University of Texas at Austin. As of September 2010, the consortium had **15 members**, representing large and small institutions from every region of the state.

The mission of the TDL is to draw from the combined resources of its members to provide **cost-effective, collaborative solutions** to the challenges of digital storage, publication, and preservation of research, scholarship, and teaching materials.

Member Services

Institutional Repositories

The Texas Digital Library (TDL) hosts DSpace digital repositories for its members, allowing them to collect, preserve, and distribute the scholarly output of their institutions.

Electronic Thesis and Dissertation Submission and Management

With Vireo, the TDL's electronic thesis and dissertation (ETD) submission and management system, students at member institutions can submit digital theses and dissertations via a simple online interface, while graduate offices can manage the ETD submission and approval process behind the scenes.

Digital Preservation

Digital assets hosted on TDL servers are preserved in the TDL Preservation Network (PresNet). Through a partnership with the Texas Advanced Computing Center (TACC), the TDL packages and archives materials at TACC and its partner organizations.

Other Scholarly Communication Services

- Online scholarly journals
- Scholarly blogs, sites, and research wikis
- Online conference management software

Goals of the Texas Digital Library

- ◆ Encourage **open access** to the scholarly assets of member institutions.
- ◆ Enable the long-term **preservation** of digital collections.
- ◆ Help shape the **evolution of scholarly communication** in the 21st century.
- ◆ Reduce cost burdens through the **sharing of resources** across multiple institutions .
- ◆ Encourage **collaboration** among Texas institutions and scholars.
- ◆ Create a competitive advantage for seeking grants by serving as a **testbed for research**.

User Support

- Helpdesk support
- TDL Wiki (user documentation)
- Training courses
- Users Groups



About the Texas Digital Library

Project Highlights

TDL Projects

Preservation Network — In order to preserve digital assets for future generations, the TDL is developing a robust infrastructure for preserving multiple copies of digital collections at distributed geographic nodes.

Texas ETD Repository — The TDL has developed software and the necessary technical infrastructure for managing and storing electronic theses and dissertations (ETDs), as well as for making them widely accessible online via a federated statewide repository.

Texas Learning Object Repository — With funding from the Texas Higher Education Coordinating Board, the TDL has partnered with the UT System to develop a statewide repository for storing and disseminating objects used in teaching and learning.

Member Projects

Texas Water Digital Library — Working with water researchers across the state, the TDL is creating a federated repository of research that provides access to a comprehensive collection of water-related information.

Border Studies Resource Center — With funding from IMLS, member school UT Brownsville/Texas Southmost College has undertaken a project to develop a federated DSpace repository (hosted by TDL) for collecting dispersed materials related to the Texas/Mexico border region.

Los Primeros Libros — TDL member institutions Texas A&M and the UT Austin, in collaboration with several universities in Mexico, are creating a rich digital collection of the *primeros libros* or "first books" printed in Mexico before 1601.

TDL Users Groups and Working Groups

The Texas Digital Library depends on the active contributions of its members to be successful. One important venue for member participation is in user groups and working groups that tackle issues of importance to the member community. Please visit TDL.org/groups for more information on TDL groups.

Vireo Users Group — The Vireo Users Group gathers and prioritizes constituent needs to guide the TDL on future development of the Vireo ETD Submission and Management System. It also provides avenues for the exchange of information about Vireo use and development.

PresNet Users Group — The PresNet Users Group helps to guide development of preservation policy and provides feedback to the TDL development team about member needs for preservation.

Metadata Working Group — The Metadata Working Group provides the TDL with general metadata expertise and addresses the following needs: developing best practices for metadata; educating stakeholders on all aspects of metadata; providing guidance on current status and future trends in metadata development.

Technical Interest Group — The TDL Technical Interest Group (TDL-TIG) brings together web developers, programmers, system administrators and others who are involved in the implementation of TDL services at their institutions.

Find out more about TDL



Visit TDL.org



Contact TDL at info@tdl.org.



Become a fan on Facebook.



Follow TDL on Twitter. (@TxDigLibrary)



Read the TDL Blog. (TDL.org/blog)



Find out about TDL User Groups. (TDL.org/groups)



Membership Information

As a consortium, the TDL benefits from and depends on the contributions of all its members – not just monetary contributions, but the contributions of expertise and time that librarians, thesis office personnel, CIOs, faculty users, and numerous others provide.

Working together, the members of the Texas Digital Library support endeavors that no single institution could accomplish on its own.

About TDL Members

The Texas Digital Library was founded in 2005 by four Texas members of the Association of Research Libraries: Texas A&M University, Texas Tech University, the University of Houston, and the University of Texas at Austin.

The organization has opened membership to **any institution of higher education in the state**, and, as of September 2010 consisted of 15 member organizations representing small and large colleges, universities, and academic medical centers from every region of Texas.

Collectively, these institutions represent more than 20,000 faculty members and some 250,000 students, including 50,000 graduate and professional students.

For more information, visit TDL.org or contact us at info@tdl.org.

Texas Digital Library

P.O. Box P | Austin, TX 78713-8916

Ph. 512-495-4403 | Fax 512-495-4347



Texas Digital Library Member Institutions

Angelo State University
Baylor University
Texas A&M University*
Texas A&M University-Corpus Christi
Texas A&M University-Kingsville
Texas A&M University at Galveston
Texas A&M University at Qatar
Texas State University
Texas Tech University *
University of Houston*
The University of Texas at Austin*
The University of Texas at Brownsville
The University of Texas Southwestern Medical Center at Dallas
The University of Texas Medical Branch at Galveston
The University of Texas M. D. Anderson Cancer Center

**founding member*



TDL Membership Information

Membership Levels

Membership in the Texas Digital Library is open to any institution of higher learning in the state of Texas. All members receive access to the full suite of TDL scholarly communications services, including repository hosting, e-journal hosting and software, and Vireo hosting, as well as basic preservation services and opportunities to participate in TDL training and support groups.

Affiliate Membership (small institutions)

Terms of Affiliate membership include:

- \$25,000 annual commitment
- 2 TB on TDL Preservation Network

Associate Membership (mid-sized institutions)

Terms of Associate membership include:

- \$50,000 annual commitment
- Funding for one full-time employee (or FTE equivalent)
- 4 TB on TDL Preservation Network

Founding Membership (large institutions)

The top membership level is open to large institutions, including the four founding members of the Texas Digital Library: Texas A&M, Texas Tech, the University of Houston, and UT Austin.

Terms of Founding membership include:

- \$100,000 annual commitment
- Funding for two full-time employees (or FTE equivalents)
- 8 TB on TDL Preservation Network

Benefits of TDL Membership

- Access to TDL scholarly communication services that disseminate your institution's scholarship widely, giving research more impact and accessibility
- Hosting and maintenance of services on TDL hardware
- Benefit from the expertise of dedicated TDL software development team and technical support services
- Cost advantage of combining resources
- Digital infrastructure in place provides advantages for grant-seeking
- Preservation of assets in the TDL Preservation Network
- Exchange of information through TDL Users Groups and Working Groups
- Knowledge sharing with other libraries, grad schools, and institutions
- Access to training and user support
- Promotion of your digital library projects through TDL channels
- Ability to participate in shaping the future of scholarly communication

Vireo is the Electronic Thesis and Dissertation (ETD) Submission and Management System from the Texas Digital Library (TDL). The Vireo system allows students to easily submit their theses and dissertations online and provides expert management software for graduate offices and libraries to move the ETD through the approval workflow and publish the ETD in an institutional repository.

Online Student Submission



Vireo provides a simple and intuitive interface through which students can submit their theses and dissertations online.

The submission interface features:

- An easy five-step process.
- Autofill capability for personal information to reduce typos.
- Embargo options for any document.
- Ability to send ETDs to UMI Dissertation Publishing.



The Texas Digital Library created Vireo with partial grant funding from the Institute of Museum and Library Services (IMLS Grant #LG-05-07-0095-07).

Vireo was developed using DSpace Manakin's capabilities for creating new workflow functionality within DSpace repositories.

All source code, documentation, and training materials will be made publicly available under an open-source license in September 2010.

Workflow management for graduate schools and libraries

Vireo's expert interface lets graduate school staff and librarians shepherd theses and dissertations through the entire ETD workflow, from submission to approval to publication in an institutional repository.

The workflow management interface provides useful tools for:

- Tracking and managing the manuscript review process.
- Creating flexible workflows using customizable filters.
- Exporting documents and metadata.
- Managing communications with all participants, including students, faculty advisors, and staff.

Submission Status [-]

Under Review

Assigned To:
Scott Phillips

Last Action:
12 Feb 2010; 3:20 PM

What:
Submission Assigned

Embargo:
Journal Hold

Want to find out more about Vireo? Visit the Texas Digital Library website at www.TDL.org or contact the TDL at info@tdl.org.

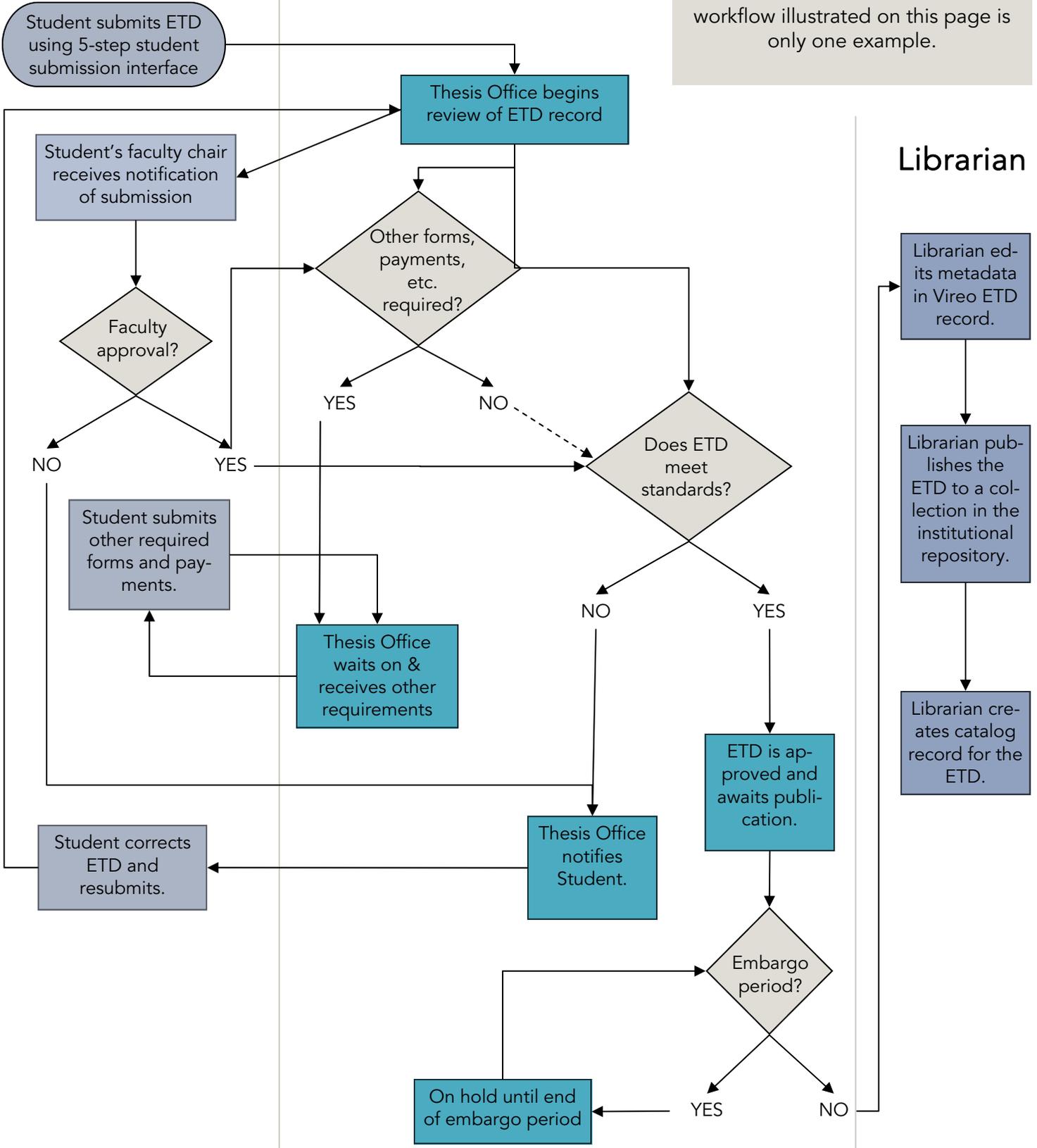


Vireo: A Sample Workflow

Student & Faculty Chair

Thesis Office

Vireo is a flexible tool that can be configured to accommodate alternative workflows. The workflow illustrated on this page is only one example.



Vireo Deployment Checklist

Deploying Vireo at your institution requires the involvement of many different constituencies at your institution, including students and faculty, graduate school staff, librarians, and technical staff. Institutions planning to deploy Vireo should allow ample time to set policy, undergo training, plan communications strategy, and develop a plan for pilot testing the software.

First Steps

- Identify project lead and major stakeholders from library, thesis office, and IT services.
- Schedule a Vireo demo and understand the Vireo workflow.
- Decide whether to host Vireo at TDL or on institutional servers using institutional staff.
- Understand technical requirements for integrating Vireo with ID management at your institution.
- Understand Vireo's metadata standard
- Schedule relevant grad school and library staff for TDL Vireo training.
- Begin working in Vireo "lab" installation.
- Determine deadlines for pilot testing and full implementation.

Policy & Workflow Planning

- Determine embargo types and duration.
- Determine naming conventions for colleges, departments, and graduate schools.
- Define workflows for grad school staff, catalogers, librarians, faculty, and students.
- Determine library workflow for cataloging ETD records and making changes to metadata within ETD records published in the IR.
- Determine Vireo Manager, who has special privileges for configuring Vireo.
- Determine UMI/ProQuest workflow.

Testing & Implementation

- Use Vireo labs instance to test policy and workflow decisions.
- Integrate Vireo with ID management and authentication software (Shibboleth).
- Create Vireo settings, email templates, and saved filters
- Install Vireo (only if running Vireo on institutional hardware)
- Undertake pilot testing of Vireo with limited group of students.
- Launch new websites and other communications initiatives.
- Provide ongoing training for all users.
- Prepare for TDL harvesting of ETDs to federated repository.

Communications planning

- Plan changes to graduate catalog and website, etc.
- Plan communication with college and department staff regarding new policies and procedures.
- Create materials for instructing students and faculty on using Vireo and other elements of ETD program (embargoes, ProQuest options, etc.)

Vireo Resources

- Vireo Users Group – <http://blogs.tdl.org/vireo>
- Vireo documentation on the TDL Wiki – <http://wikis.tdl.org/tdl/Vireo>
- Texas ETD Association – <http://txetda.wordpress.com>
- TDL training – <http://www.tdl.org/training>
- TDL Helpdesk— support@tdl.org

About the TDL

The Texas Digital Library is a consortium of higher education institutions in Texas that provides shared services in support of research and teaching. Currently, the consortium has 16 members, representing large and small institutions from every region of the state.

The goal of the TDL is to use a shared-services model to provide cost-effective, collaborative solutions to the challenges of digital publication, storage, and preservation of research, scholarship, and teaching materials.

Among the services the TDL provides its members are:

- institutional repositories
- hosted scholarly publishing tools
- electronic thesis and dissertation management software and infrastructure
- development of a "Preservation Network" to secure multiple copies of digital items at geographically distributed nodes
- training, technical support, and opportunities for professional interaction

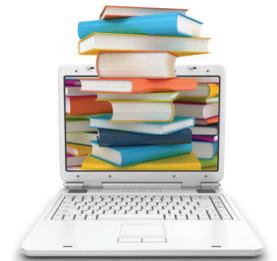


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Openness. Preservation. Collaboration.

Texas
Digital
Library



Find out how your institution's membership in the Texas Digital Library provides faculty and staff with the tools to create and publish scholarly work.



Membership in the Texas Digital Library—What It Means For Faculty

Today, online technologies are transforming the way that scholarship can be done and disseminated. New methods for collaboration and publication have the potential to increase the impact of published scholarship, make research more efficient, and facilitate teamwork.

*Through your institution's membership in the Texas Digital Library, **faculty and staff have free access** to a suite of scholarly communication services that allow you to share your research with the world.*

PUBLISH



The TDL offers tools to make research widely available online.

- Submit work to your library's **institutional repository**.
- Start an **online, peer-reviewed journal**, or submit articles to existing Open Access journals.

The TDL hosts repositories and journals for members and their faculty.

COLLABORATE



The TDL facilitates collaboration across disciplines and institutions with tools like wikis and federated repositories.

- Use a **wiki** to collectively manage a research project, gather feedback, or monitor results.
- Create **federated collections** of interdisciplinary or cross-institutional research and scholarship within an online repository.

GET ONLINE



Create a web presence for yourself, your scholarly work, or academic events you might be planning.

- Planning an academic conference? Use **online conference management** software hosted by TDL.
- Create a **faculty web page** that includes your academic accomplishments and links to your other scholarly websites.

What next?

- ✓ Go to TDL.org or talk to a librarian to learn more about the Texas Digital Library.
- ✓ Request a journal website, blog, or other TDL service.
- ✓ Check out training opportunities at TDL.org/training.
- ✓ Join a TDL Users Group. See TDL.org/groups.
- ✓ Attend the annual Texas Conference on Digital Libraries, held each spring in Austin.



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